SWIFT FOX NEWS

Newsletter No. 5 of the Swift Fox Conservation Team
September 2005

Comments from Team Leader

This is the fifth newsletter of the Swift Fox Conservation Team (SFCT) since the group's formation in 1994. The SFCT is comprised of representatives from state wildlife agencies within the historic range of the swift fox and members of federal and private wildlife and land management agencies. The SFCT was organized to respond to the U. S. Fish and Wildlife Service finding that the swift fox was warranted for federal listing under the Endangered Species Act. Member states and agencies have worked cooperatively on swift fox monitoring, management, and research that provided new information to support the removal of the species from the federal candidate list in 2001. However, the Team's primary mission of ensuring the long-term conservation of swift fox still remains. The Team holds open annual meetings and produces an annual report that includes updates on monitoring efforts and research projects.

Inside this newsletter, you will find project updates, accomplishments, and items of note.
See inside for more information and for newly updated web sites. The Team hopes you find this newsletter useful and appreciates your support.

Brian Giddings
SFCT Chair

All the photos are by Lu Carbyn

SWIFT FOX CONSERVATION TEAM SUPPORTS USFWS DELISTING DECISION

On December 9, 2004, a coalition led by Forest Guardians issued notice to the Department of the Interior and the U.S. Fish and Wildlife Service (Service) of its intent to sue over the Service's decision not to list the swift fox under the federal Endangered Species Act (ESA). This potential lawsuit stems from the Service's 2001 ruling that swift fox populations do not warrant ESA protection. According to the Swift Fox Conservation Team (SFCT), a multi-agency group comprised of biologists from wildlife and land management agencies within the historic range of the swift fox, a lawsuit would have little sound basis.

Prior to the Service's 2001 ruling, swift fox had been listed as a candidate species under the ESA, meaning the Service believed that listing "may be warranted," but that total ESA protection was precluded by the needs of more imperiled species. The SFCT was formed by state wildlife agencies in 1994 in response to the initial candidate species listing, with a primary goal of developing and implementing conservation measures that would secure swift fox populations into the future, thereby precluding the need for full listing under the ESA. A species status assessment and conservation strategy document was developed by the SFCT, which outlined research and management issues that needed to be addressed for the primary goal to be accomplished. Since that time, strategy implementation has led to extensive research and population monitoring efforts by agencies and cooperators represented through the SFCT, in addition to the advocacy of land uses within swift fox range that favor fox-friendly practices.

As a result of the SFCT's research and survey efforts, swift fox are now known to be more adaptable, populations are more widespread, and habitats more extensive than believed in 1994 when the species was initially listed as a candidate species. Swift fox are also found not to be dependent on prairie dogs for their survival as previously thought, and they persist in some intensively farmed areas. Current species range encompasses a vast and nearly contiguous geographic area from Texas to southern Saskatchewan, and most states within the species' range indicate stable to increasing populations. Consequently, in its 2001 assessment of the species' status, the Service concluded that "viable populations currently occur in approximately 40% of those areas formerly occupied. The species also appears to be more adaptable to a wide range of habitat types and more tolerant of modified land uses than previously believed. Furthermore, the continuing efforts of the Conservation Team indicate that management activities for this species will be carefully considered in the future."

Given the range, distribution and current status of this species, there is no scientific evidence that the swift fox is imperiled or in danger of extinction. It is the position of the wildlife experts who comprise the SFCT that species protection, as provided through the federal ESA, is neither necessary nor desirable. It is anticipated that state and federal agency funding for swift fox conservation activities will exceed $1.3 million by 2008, and the SFCT has demonstrated its prominent and proactive role in swift fox conservation since 1994. The SFCT welcomes interested parties who share the common goal of assuring the long-term viability of this species and believes this goal can be met most effectively through cooperative efforts within our modern landscapes that can accommodate multiple uses and resources, rather than through divisive litigation.

SWIFT FOX CONSERVATION TEAM CONTINUES LONG-TERM COMMITMENT

The Swift Fox Conservation Team met recently in Kansas City, Kansas, continuing its long-term commitment to swift fox management and conservation in the U.S. and Canada. The Team was formed in 1994 and is comprised of representatives from state wildlife agencies within the historical range of the swift fox and members of federal, tribal, and private wildlife and land management entities. The Team was organized to respond to the U.S. Fish and Wildlife Service's finding that the swift fox was warranted for federal listing under the Endangered Species Act. Member states and other entities have worked cooperatively on swift fox monitoring, management, and research efforts that have yielded new information and that helped justify removal of the species from the federal candidate list in 2001. The Team's primary mission of ensuring long-term management and sustainability of the swift fox remains unchanged.

Here are a few highlights from the Kansas City meeting:

- Nearly all states and many cooperators continue monitoring swift fox populations, and efforts continue to assure that all methods produce scientifically-sound results. Team members are also assisting with information tools to help landowners accommodate swift fox and other prairie-dependent species on their lands, since private lands are extremely important for many wildlife species.
- Marsha Sovada, USGS research scientist at Northern Prairie Wildlife Research Center, continues to assist the Team in producing an updated swift fox distribution map, using the most recent survey results. Under a contract with the Team, Dr. Sovada has created a database containing all survey results submitted, both positive (swift fox detected) and negative (swift fox not detected) to try to better understand landscape features important to swift fox.
- USFWS is presently addressing a lawsuit that questions the Service's decision to remove the swift fox from the federal candidate species list in 2001.
- Reintroduction projects are going well; at present, they include Badlands National Park in South Dakota; Bad River Ranches, a private ranch in South Dakota; the Blackfeet Reservation in Montana; and the Blood Reservation in Alberta. The Canadian swift fox population, which resulted from reintroduction, has expanded into Montana. Cooperators from Montana and Canada will conduct a census during 2005-2006 to determine how the population is doing.
- The Team has accepted assistance from the American Zoological Association's (AZA) Canid Taxonomic Advisory Group to better manage swift fox in AZA-accredited zoos for conservation benefits. Zoo animals provide a research opportunity, and zoos have a tremendous opportunity to share information about wildlife species and management efforts with visitors.
- The Team recommitted itself to its guidance document, "Conservation Assessment and Conservation Strategy for Swift Fox in the United States." The Team will review and update this document during the upcoming year.

To learn more about swift fox management and recovery, visit the following website, maintained by the USFWS' South Dakota Ecological Services Field Office:
http://southdakotafieldoffice.fws.gov/swift_fox_main.htm

Updates

Colorado Division of Wildlife's report is found at the end of the state updates.

Kansas Department of Wildlife and Parks
The Kansas Department of Wildlife and Parks conducted track surveys in 2002 to estimate swift fox distribution, abundance and trends. Department observations and harvest records are also maintained. The swift fox is classified as a furbearer in Kansas; and a small number of swift fox are harvested annually. Swift fox populations are considered stable to increasing in Kansas.
Contact: Matt Peek

Montana Department of Fish, Wildlife and Parks
Swift fox populations in the state continue to expand in both distribution and abundance. Increasing population trends are particularly evident within the 1.7 million acres of prairie habitat in northcentral Montana and on the Blackfeet Reservation that comprises a portion of another 1.6 million acres of contiguous prairie grassland. Montana Fish, Wildlife & Parks and the Bureau of Land Management will participate with Canada later this year to expand a replication of the 2000-01 swift fox census in northcentral Montana, which showed a 3-fold increase in species range and population size in a five-year period. Swift fox research on the Blackfeet Reservation measured population increases in 2004 while more recent evidence indicates these foxes are expanding their range outside reservation boundaries through natural re-colonization into vacant prairie habitats up to 70 miles away. Montana has used approximately $165,000 in state and federal funds since 1995 to implement research and management activities to accomplish objectives outlined in the national Swift Fox Conservation Strategy. State management activities planned for 2005 will involve supporting habitat conservation efforts and standardizing various survey and inventory methods to continue monitoring the long-term population trend of swift fox that occupy northcentral Montana.
Contact: Brian Giddings

Nebraska Game and Parks Commission
The Nebraska Game and Parks Commission conducted scent station and track surveys in 2003 to monitor swift fox populations. Swift fox populations are considered stable to decreasing in Nebraska.
Contact: Sam Wilson

New Mexico Department of Game and Fish
The New Mexico Department of Game and Fish conducted scat surveys to assess presence or absence of swift fox in 2002 and 2003. Surveys are scheduled again for 2005. The species is present in all or most of its historic range in New Mexico. The species hybridizes with the closely related kit fox in the southeastern portion of the State. A small number of swift fox are harvested annually. Swift fox populations are considered stable in New Mexico. *Contact: Jim Stuart*

North Dakota Game and Fish Department
The North Dakota Game and Fish Department conducted track surveys in 2002. Surveys will occur again in 2006. Swift fox were added to the "Species of Conservation Priority" list in North Dakota. This designation will encourage a comprehensive approach to conservation. The last confirmed sighting of a swift fox in North Dakota was in the mid-1900's. There are currently no known populations of swift fox in North Dakota. *Contact: Randy Kreil*

Oklahoma Department of Wildlife Conservation
Between 1999 and 2001, track search surveys were used to determine baseline swift fox distribution and relative abundance in Oklahoma. In 2004, the survey was repeated to evaluate the current status of the swift fox in the shortgrass High Plains region. The survey was conducted in 102 townships across portions of six counties within the species' historic range. Tracks were found in 57 out of the 102 townships surveyed. During the 2004 survey, swift fox tracks were also detected for the first time in three townships in Harper County and one township in Ellis County. The summer of 2004 proved to be unique climatologically, with a very dry May, followed by a very wet June, and average precipitation in July and August. This allowed for excellent tracking conditions throughout the survey period.
Contact: Julianne Whitaker Hoagland

South Dakota Department of Game, Fish and Parks
South Dakota Department of Game, Fish and Parks has included the swift fox as a "species of greatest conservation need" in its draft Comprehensive Wildlife Conservation Plan. SDGFP provided state and State Wildlife Grants funding to assist reintroduction efforts at the Bad River Ranches in South Dakota.
Contact: Eileen Dowd Stukel

Texas Parks and Wildlife Department
Swift fox research and population monitoring is ongoing in Texas. Four research projects have been completed since the late 1990's, and approximately 30 peer-reviewed publications have resulted. The most recent work included research on the role of artificial escape dens for increasing swift fox population in 2002 and 2003. In areas with high coyote abundance, artificial escape dens increased swift fox survival and abundance. A small number of swift fox are harvested annually. The population appears to be stable to decreasing in Texas. *Contact: Heather Whitlaw*

Wyoming Game and Fish Department
Trend surveys will be completed on an annual basis while swift fox translocations to Bad River Ranches are ongoing, and every three years following completion of the translocation efforts. Swift fox populations are considered stable to increasing in Wyoming.
Contact: Martin Grenier

MONITORING SWIFT FOX POPULATIONS IN EASTERN COLORADO

EXECUTIVE SUMMARY

FRANCIE PUSATERI

- A perceived decline of and paucity of information on populations of the swift fox (*Vulpes velox*) led to a 1992 petition of the U.S. Fish and Wildlife Service (USFWS) to list the species under the Endangered Species Act of 1973 (ESA). Establishment of and preliminary findings from the Swift Fox Conservation Team (SFCT) lead the USFWS in 1995 to deem the swift fox warranted but precluded from listing under the ESA. The Colorado Division of Wildlife (CDOW) funded research from 1995–1997 that resulted in a new methodology to survey swift fox over a large geographic area relative to previous studies (Finley 1999, Finley et al. 2005), and plans to continue this effort at 5 year intervals.

Translocation

- Because populations of swift fox in the northern plains were greatly diminished or extirpated, the CDOW is cooperating with Badlands National Park (BNP) to reintroduce swift foxes in South Dakota. In 2004, 28 swift fox were captured from 6–12 October in eastern Colorado and translocated to BNP. This was the second year of a three year effort to establish a viable population of swift fox in BNP, and added to the 30 swift foxes translocated to BNP from Colorado in 2003. Some swift foxes released in 2003 bred successfully in 2004.

Population Monitoring

- Based on the methods of Finley (1999), swift foxes were monitored in eastern Colorado from 31 August 2004–12 February 2005. Following objectives of the SFCT, we: 1) estimated occupancy rates of 12 mi^2 plots, 2) estimated geographic distribution, 3) indexed population size, and 4) tested for seroprevalence of diseases in swift foxes.

- Cage-traps were set on 51 randomly selected 12 mi^2 grids, each comprised of 20 traps and run three consecutive nights. Effective trapping effort totaled 3,008 trap nights (TN). We captured 136 swift fox on 36 (71%) grids, including 12 recaptures. Mean capture success was 4.1 swift fox/100 TN (initial captures only), or 4.5 swift fox/100 TN including recaptures. This is slightly lower than the 4.6 swift fox/100 TN (initial captures only) and 6.1 swift fox/100 TN (including recaptures) reported by Finley (1999).

- The percent of grids occupied by swift foxes in eastern Colorado does not appear to have changed since a comparable sample was taken of 72 grids in March 1995–January 1997 (Finley et al. 2005). Summing the predicted occupancy values across the sampled grids for the respective studies, Finley et al. (2005) found $\hat{\psi} = 0.790$ (SE = 0.0574), whereas this study found $\hat{\psi} = 0.742$ (SE = 0.0869), providing an estimated change of −0.048 (SE = 0.104, 95% CI −0.252 – 0.156). This difference is well within the sampling variation of the estimates, and does not indicate a change in swift fox populations in eastern Colorado.

- The mean number of swift foxes estimated per 12 mi^2 grid for all 51 grids was 4.83 (SE = 1.990, 95% CI 0.933 – 8.735), ranging from zero to 26. However, this estimate should be used only as an index of swift fox populations because the trapping grid attracts foxes from some unknown distance outside the trapping grid, and thus is a biased estimate of true density.

Disease Monitoring

- Blood samples were collected from swift foxes to evaluate seroprevalence to select infectious diseases. Serum samples were tested for antibodies to plague, tularemia, canine parvovirus (CPV) and canine distemper virus (CDV). However, titers were not measured for all four agents in every sample due to limited volumes of sera. CPV titers only were measured in foxes captured for the BNP translocation effort. We interpreted titers as indicating prior exposure to the pathogens listed, but not necessarily reflecting active infection or disease in test-positive swift foxes.

- Tularemia, caused by the bacterium *Francisella tularensis*, has a broad host range but is primarily a pathogen of lagomorphs and rodents. Of 107 swift foxes samples tested in this study, only 9 (8%) had antibodies for tularemia. For comparison, disease monitoring efforts in the Wolf Creek Management Area in northwestern Colorado during 2000–2004 revealed tularemia seroprevalence in coyotes as high as 20–40%.

- Plague (*Yersinia pestis)* is a reportable disease to which canids are relatively resistant, and therefore a good sentinel species. However, plague can be highly fatal in many of Colorado's other native species including prairie dogs (*Cynomys ludovicianus*), black-footed ferrets (*Mustela nigripes*), and lynx (*Lynx canadensis*). The primary epizootic hosts of plague are rodents, and transmission is primarily through flea vectors. However, in carnivores exposure can also occur through consumption of infected prey. Antibody titers indicative of plague exposure were present in 21% of swift foxes sampled.

- Canine distemper is a contagious disease caused by a morbillivirus. Distemper is another disease of significance to some threatened and endangered species, most notably black-footed ferrets. No antibody titers to CDV were detected in swift foxes sampled, although the samples screened for CDV were all from a relatively small portion of the overall survey area. Miller et al. (2000) reported 18% seroprevalence to CDV in 22 swift foxes sampled in Colorado and 13% in 97 swift and kit foxes (*V. macrotis*) sampled throughout 7 western states.

- Canine parvovirus titers are commonly found in domestic and wild canids. Although many canids and some felids are susceptible to disease associated with CPV infection, no cases have been documented in swift foxes. Of 28 swift foxes screened, 17 (61%) had titers to CPV.

Literature Cited

Finley, D.J. 1999. Distribution of the swift fox (*Vulpes velox*) on the eastern plains of Colorado. M.A. Thesis, University of Northern Colorado, Greeley.

Finley, D. J., G. C. White, and J. P. Fitzgerald. 2005. Estimation of swift fox population size and occupancy rates in eastern Colorado. Journal of Wildlife Management. In Press.

Miller, D. S., D. F. Covell, R. G. McLean, W. J. Adrian, M. Niezgoda, J. M. Gustafson, O. J. Rongstad. 2000. Serologic survey for selected infectious disease agents in swift and kit foxes from the western United States. Journal of Wildlife Diseases 36:798–805.

Canadian Wildlife Service
Following a reintroduction program during the 1980's and 1990's, Canada once again has a reproducing swift fox population.
Contact: Steve Brechtel

US Animal and Plant Health Inspection Service
Swift fox are not targets of any control activities by APHIS. Any incidental take (mostly due to the restricted use of M44s during other activities) is reported.
Contact: Jeffrey Green

USGS Biological Resources Division
The Northern Prairie Research Center continues to maintain a swift fox bibliography. Work is also proceeding on an update of habitat use and distribution. A database containing all survey results has been created to better understand landscape features important to swift fox.
Contact: Marsha Sovada

Bureau of Land Management
Survey work has been completed on BLM lands in Montana.
Contact: Cal McCluskey

US Fish and Wildlife Service
In 2004, the Service received a Freedom of Information Act (FOIA) Request from Forest Guardians and a 60-day Notice of Intent (NOI) to sue from Forest Guardians, Predator Conservation Alliance, Great Plains Restoration Council, and the Center for Biological Diversity. Both the FOIA and NOI were regarding the Service's decision to remove the swift fox from the candidate list in January, 2001. The Service has responded to the FOIA and is finalizing a response to the NOI. Information regarding swift fox activities can be found on the USFWS South Dakota home page:
http://southdakotafieldoffice.fws.gov
Contact: Pete Gober

USDA Forest Service
Swift fox occur on several National Grasslands (NG) within the historic range of the species. Resident populations are found on Thunder Basin NG, Cimarron NG, Pawnee NG, and Comanche NG. Fort Pierre NG in South Dakota is adjacent to Bad River Ranches; and several reintroduced foxes have been documented on this grassland. Incidental sightings have occurred on Oglala and Buffalo Gap NG.
Contact: Bob Hodorff

US National Park Service
A reintroduction effort has been underway at Badlands National Park in South Dakota since 2003 (see **Reintroduction Projects**). Swift fox were present in the area historically and were occasionally observed until the late 1980's. The Park represents a biological corridor between existing populations 90 miles west in Wyoming and reintroduced fox at Bad River Ranches 65 miles northeast. No other National Parks have resident swift fox.
Contact: Dan Licht

Turner Endangered Species Fund
The Turner Endangered Species Fund continues to be involved in restoration of swift fox on their Bad River Ranches property in South Dakota. This effort has been underway for several years. Releases have been occurring since 2001 (see **Reintroduction Projects**).
Contact: Kevin Honness

Blackfeet Reservation
The Blackfeet Tribe and Defenders of Wildlife are assessing the success of recent reintroduction efforts by studying growth rates of swift fox populations in recent years. Preliminary analysis indicates that from 2003 to 2004 the population increased by 10 percent. Twenty-one juveniles and 24 adults were radio-collared in 2004. This spring, fecundity estimates and searches for natal dens will be completed. Analyses of field data will be completed in 2005 and a thesis submitted to the University of Montana.
Contact: Dan Carney

Ft. Peck Indian Reservation
Factors affecting the likelihood of swift foxes to persist and to recolonize former ranges need to be assessed so that proactive management can be developed to ensure swift fox restoration. The Ft. Peck Indian Reservation (FPIR) appears to have good fox habitat and could serve as an important area for fox recolonization providing increased robustness to the fox population along the Montana-Canada border. The FPIR could also serve as an important area for expanding and eventually connecting fox populations to more southern regions. We initiated a 3 year project assessing the potential for natural recolonization by swift fox of the FPIR. We will determine factors affecting recolonization so that appropriate management can be developed to better ensure fox restoration in the region. Proactive management prescriptions may include habitat restoration and protection, predator management, and fox population reintroduction or augmentation via translocation. We initiated surveys for swift fox and their predators and prey on FPIR in fall 2004. We examined landscape features for suitability for foxes. We began trapping for foxes on FPIR in January 2005. We captured and radio collared 1 fox in the extreme northwest corner of the reservation. Our trapping success and survey work indicates that foxes have likely expanded only to the north and west perimeters of the FPIR to date. We plan to expand trapping to the northwest of the FPIR where sign indicates presence of fox. Dispersal, survival, and reproductive rates of radio collared foxes and factors affecting these parameters will allow us to determine the rate and likelihood of fox population expansion and persistence in the region. We will integrate our work with the Montana/US swift fox survey planned for winter 2005-2006. We will work with local people to ensure optimization of fox management and restoration.

Cooperators:
Montana Fish, Wildlife, and Parks
Bureau of Land Management

Contact: Kyran Kunkel

Items of Note

Book Available
A new book entitled "The Swift Fox: Ecology and Conservation of Swift Foxes in a Changing World," is available. The book has five sections covering general conservation issues; distribution and population shifts; censusing techniques; population ecology; and taxonomy, physiology, and disease-related issues. The book was published by the Canadian Plains Research Center at the University of Regina and sells for $34.95 per copy plus postage and handling. To order, visit the following website: http://www.cprc.ca/ and view the Publications Catalog.

New Documents

Dickson, T. 2004. The Swift Fox's Speedy Return. Montana Outdoors. July/August. Pp. 28-31.

Grenier, M. and H. Whitlaw, editors. 2005. Swift Fox Conservation Team 2003 Annual Report. Wyoming Game and Fish Department, Lander, Wyoming. 119 pp.

Harrison, R.L., P.S. Clarke and C.M. Clarke. 2004. Indexing swift fox populations in New Mexico using scats. *The American Midland Naturalist*. Vol. 151, No. 1, pp. 42-49.

Stephens, R.M. and S.H. Anderson. 2005. Swift fox (*Vulpes velox*): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. 46 pp. Available at: http://www.fs.fed.us/r2/projects/scp/assessments/swiftfox.pdf.

Canid Taxon Advisory Group (TAG) Canid TAG oversees captive conservation programs for canids and hyaenids, including swift fox in American Zoo and Aquarium Association (AZA) facilities and facilitates communication between the wildlife community and zoos. There are currently 60 swift fox in 18 AZA institutions.

Reintroduction Projects

Bad River Ranches
Turner Endangered Species Fund is beginning its fourth year of swift fox reintroduction on the Bad River Ranches in central South Dakota. Releases are planned for a total of 6-10 years. Monitoring utilizes a combination of radio collars, abdominal implants, and aerial reconnaissance. Known causes of mortality include coyotes, vehicles, and raptors. Predator control efforts are being utilized. Over 70 landowners have cooperated with this reintroduction effort. Monitoring will be conducted for 10 years.
Contact: Kevin Honness

Badlands National Park
The National Park Service is beginning its third and final year of swift fox reintroduction at Badlands National Park in southwestern South Dakota. The program's intent is to capture 30 swift fox per year in Colorado and release them at the Park. All released fox will be radio-collared. As of February, 2005, 32 swift fox

were being tracked. Monitoring will continue over the next several years. Other partners include: Colorado Division of Wildlife; Turner Endangered Species Fund; South Dakota Game, Fish and Parks; Wyoming Game and Fish; Lower Brule Sioux Tribe; Fort Pierre NG; Buffalo Gap NG; South Dakota State University; and USGS Northern Prairie Wildlife Research Center.
Contact: Greg Schroeder

Kainai (Blood) Tribe
The Blood Tribe in Canada began reintroduction efforts in 2004, after 3 years preparation. Swift fox have been extirpated from this region for 80 years. Cooperators include: Elsa Wild Animal Appeal of Canada, the International Wildlife Coalition, the Cochrane Ecological Institute, Alberta Eco Trust Foundation, and Environment Canada. Fox for reintroduction were obtained from Pueblo Zoo (Colorado) and Cochrane Ecological Institute.

Other Tribes
The Lower Brule Sioux Tribe and the Oglala Sioux Tribe (both in South Dakota) are investigating the feasibility of swift fox reintroduction projects.